STIC Search Report
Biotech-Chem Library

STIC Database Tracking Number: 177350

TO: Tamthom Truong **Location: rem/5B19/5C18** **Art Unit: 1624** **Friday, February 03, 2006** **Case Serial Number: 10/829064**	**From: Paul Schulwitz** **Location: Biotech-Chem Library** **REM-1A65** **Phone: 571-272-2527** **Paul.schulwitz@uspto.gov**

Search Notes

Examiner Truong,

Please review the attached search results.
If you have any questions or if you would like to refine the search query, please feel free to contact me at any time.

Thank you for using STIC search services!

Paul Schulwitz
Technical Information Specialist
REM-1A65
571-272-2527

STIC SEARCH RESULTS FEEDBACK FORM

Biotech-Chem Library

Questions about the scope or the results of the search? Contact ***the searcher or contact***:

Mary Hale, Information Branch Supervisor
Remsen Bldg. 01 D86
571-272-2507

Voluntary Results Feedback Form

- *I am an examiner in Workgroup:* ☐ *Example: 1610*
- *Relevant prior art **found**, search results used as follows:*
  - ☐ 102 rejection
  - ☐ 103 rejection
  - ☐ Cited as being of interest.
  - ☐ Helped examiner better understand the invention.
  - ☐ Helped examiner better understand the state of the art in their technology.

Types of relevant prior art found:

- ☐ Foreign Patent(s)
- ☐ Non-Patent Literature
  (journal articles, conference proceedings, new product announcements etc.)

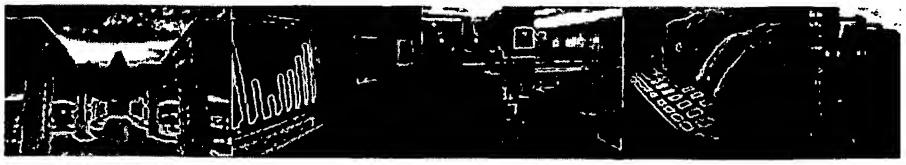
- *Relevant prior art **not found:***
  - ☐ Results verified the lack of relevant prior art (helped determine patentability).
  - ☐ Results were not useful in determining patentability or understanding the invention.

Comments:

Drop off or send completed forms to STIC-Biotech-Chem Library Remsen Bldg.

177350

Scientific & Technical Information Center



Online Database Search Form

MEJ

SERVICES

Database Search	submit
PLUS Search	submit
Book/Article Delivery	submit
Book/Journal Purchase	submit
Foreign Patents	submit
Telework Support	
Translation	submit
SIRA Automation Training	
STIC Demos & Events	

RESOURCES

STIC Online Catalog
Databases
E-Books search
E-Journals search
Legal Tools
Nanotechnology
Reference Tools

STIC

About Us
FAQ
Locations & Hours
News
Site Map
Staff

Search STIC Site

GO

Search requests relating to published applications, patent families, and litigation can t form and clicking on "Send."

* indicates mandatory information.

*** Tech Center:**

(•) TC 1600 ( ) TC 1700 ( ) TC 2100 ( ) TC 2600 ( ) TC 2800
( ) TC 2900 ( ) TC 3600 ( ) TC 3700 ( ) Law Lib ( ) Other

Your Contact Information:

2-mm amdt

* Email Address: tamthom.ngo@uspto.gov
(*e.g., Susan.Smith@uspto.gov*)

Mailbox No.: REM -- 5C18

*** Case serial number:** 10/ 829,064

If not related to a patent application, please enter NA here.

RECEIVED JAN 24 2006 (STIC)

Class / Subclass(es) 514/250 ; 544/250, 251, 252

Earliest Priority Filing Date: 04-24-2003

Format preferred for results:

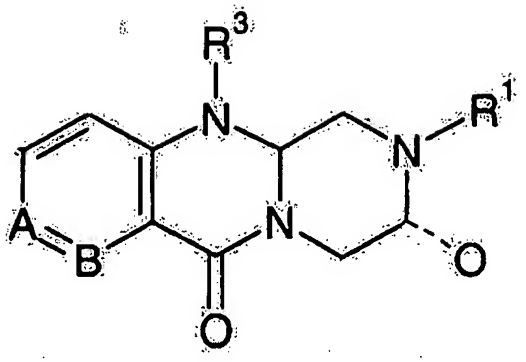
☑ Paper ☐ E-mail ☐ Diskette

Provide detailed information on your search topic: Query attached

- In your own words, describe in detail the concepts or subjects you want us to se
- Include synonyms, keywords, and acronyms. Define terms that have special me
- For Chemical Structure Searches Only
  Include the elected species or structures, keywords, synonyms, acronyms, and
- For Sequence Searches Only
  Include all pertinent information (parent, child, divisional, or issued patent numb serial number.
- For Foreign Patent Family Searches Only
  Include the country name and patent number.
- Provide examples or give us relevant citations, authors, etc., if known.
- FAX or send the **abstract, pertinent claims** (not all of the claims), **drawings,** c EIC or branch library.

Enter your Search Topic Information below:

Appln. # 10/ 829,064 **QUERY**



(search also tautomer)

A is CR^6 or N
B is CR^7 or N
} A + B NOT simultaneously N.

R^1 is Alkyl, cycloalkyl, alkenyl, alkynyl (each is optionally substituted).

R^3 is $(CH_2)_{1-5}$—(Ring)

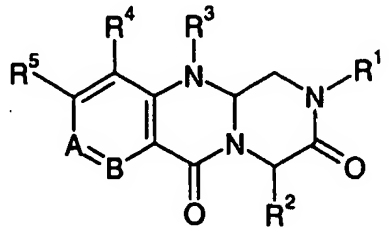
wherein Ring is phenyl, imidazolyl, triazolyl pyridinyl or "Het"

See also attached claims 1 + 6 (process)

AMENDMENT TO THE CLAIMS

This listing of claims will replace all prior versions, and listings of claims in the application.

1. (Original) A compound of formula I,



I

wherein:

A is CR^6 or N;

B is CR^7 or N, provided that A and B are not simultaneously N;

R^1 is $(C_1\text{-}C_{10})$-alkyl, $(C_3\text{-}C_8)$-cycloalkyl, $(C_2\text{-}C_{10})$-alkenyl or $(C_2\text{-}C_{10})$-alkynyl, each of which is unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of halogen, cyano, $(C_3\text{-}C_8)$-cycloalkyl, phenyl, biphenylyl, naphthyl, indanyl and heteroaryl, wherein the phenyl, biphenylyl, naphthyl, indanyl and heteroaryl are each, independently, unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of halogen, cyano, $(C_1\text{-}C_6)$-alkyl, trifluoromethyl, $(C_1\text{-}C_6)$-alkoxy and trifluoromethoxy;

R^2 is hydrogen, $(C_1\text{-}C_4)$-alkyl, trifluoromethyl, $-(CH_2)_a\text{-}(C_3\text{-}C_8)$-cycloalkyl, $-(CH_2)_a$-phenyl, $-(CH_2)_a$-imidazolyl or $-(CH_2)_a$-pyridinyl, wherein the phenyl, imidazolyl and pyridinyl are each, independently, unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of halogen, cyano, $(C_1\text{-}C_6)$-alkyl, trifluoromethyl, $(C_1\text{-}C_6)$-alkoxy and trifluoromethoxy;

a is 0, 1 or 2;

R^3 is $-(CH_2)_b$-phenyl, $-(CH_2)_b$-imidazolyl, $-(CH_2)_b$-triazolyl, $-(CH_2)_b$-Het or $-(CH_2)_b$-pyridinyl, wherein the phenyl, imidazolyl, triazolyl and pyridinyl are each, independently, unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of halogen, cyano, $(C_1\text{-}C_6)$-alkyl, trifluoromethyl, $(C_1\text{-}C_6)$-alkoxy and trifluoromethoxy;

b is 1, 2, 3 or 4;

R^4, R^5, R^6 and R^7 are each, independently, hydrogen, $(C_1\text{-}C_4)$-alkyl, trifluoromethyl, $(C_1\text{-}C_4)$-alkoxy, trifluoromethoxy, halogen, nitro, cyano, $-CO\text{-}R^{10}$, $-NR^8R^9$, $-NH\text{-}CO\text{-}(C_1\text{-}C_4)$-alkyl, $-SO_2\text{-}NR^8R^9$, $-SO_2\text{-}(C_1\text{-}C_4)$-alkyl or $-SO_2\text{-}(CH_2)_c$-phenyl, wherein the phenyl is unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of halogen, cyano, $(C_1\text{-}C_6)$-alkyl, trifluoromethyl, $(C_1\text{-}C_6)$-alkoxy and trifluoromethoxy;

c is 0, 1 or 2;

R^8 and R^9 are each, independently, hydrogen or $(C_1$-$C_4)$-alkyl;

R^{10} is hydroxy, $(C_1$-$C_4)$-alkoxy or $-NR^8R^9$;

Het is a saturated 5-membered or 6-membered monocyclic heterocycle containing a ring nitrogen atom via which it is bonded, wherein the monocyclic heterocycle optionally contains a further ring heteroatom selected from the group consisting of N, O and S, and is unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of $(C_1$-$C_4)$-alkyl and $-(CH_2)_d$-phenyl, wherein the phenyl is unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of halogen, cyano, $(C_1$-$C_6)$-alkyl, trifluoromethyl, $(C_1$-$C_6)$-alkoxy and trifluoromethoxy;

d is 0, 1 or 2;

and

heteroaryl is an aromatic 5-membered to 10-membered, monocyclic or bicyclic heterocycle containing 1, 2, 3 or 4 identical or different ring heteroatoms selected from the group consisting of N, O and S;

or a stereoisomer or a mixture of stereoisomers thereof in any ratio, or a physiologically acceptable salt thereof;

provided that the compound of formula I is not the compound wherein

A is CH,

B is CH,

R^1 is methyl,

R^2 is methyl,

R^3 is unsubstituted benzyl,

R^4 is hydrogen, and

R^5 is hydrogen.

2. (Currently amended) ~~A~~The compound according to claim 1, wherein:

A is CR^6 or N;

B is CR^7 or N, provided that A and B are not simultaneously N;

R^1 is $(C_1$-$C_6)$-alkyl, unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of $(C_3$-$C_6)$-cycloalkyl, phenyl, biphenylyl, naphthyl, indanyl, thienyl and pyridinyl, wherein the phenyl, biphenylyl, naphthyl, indanyl, thienyl and pyridinyl are each, independently, unsubstituted or substituted by one or more identical or different substituents selected from the group consisting of fluorine, chlorine, bromine, cyano, $(C_1$-$C_4)$-alkyl, trifluoromethyl, $(C_1$-$C_4)$-alkoxy and trifluoromethoxy;

R^2 is hydrogen, $(C_1$-$C_4)$-alkyl, trifluoromethyl, $-(CH_2)_a$-$(C_3$-$C_6)$-cycloalkyl, $-(CH_2)_a$-phenyl, $-(CH_2)_a$-imidazolyl or $-(CH_2)_a$-pyridinyl, wherein the phenyl, imidazoyl and pyridinyl are each, independently, unsubstituted or substituted by one or more identical or different substituents selected

b is 1, 2, 3 or 4;

R^4 and R^7 are each, independently, hydrogen, (C_1-C_4)-alkyl, trifluoromethyl, methoxy, fluorine or chlorine;

R^5 and R^6 are each, independently, hydrogen, (C_1-C_4)-alkyl, trifluoromethyl, methoxy, fluorine, chlorine, nitro, $-CO-R^{10}$, $-NR^8R^9$, -NH-CO-methyl, $-SO_2-NR^8R^9$, $-SO_2$-methyl or SO_2-CH_2-phenyl;

R^8 and R^9 are each, independently, hydrogen or methyl;

and

R^{10} is hydroxy, (C_1-C_2)-alkoxy or $-NR^8R^9$,

or a stereoisomer or a mixture of stereoisomers thereof in any ratio, or a physiologically acceptable salt thereof.

4. (Currently amended) ~~A~~The compound according to claim 1, wherein:

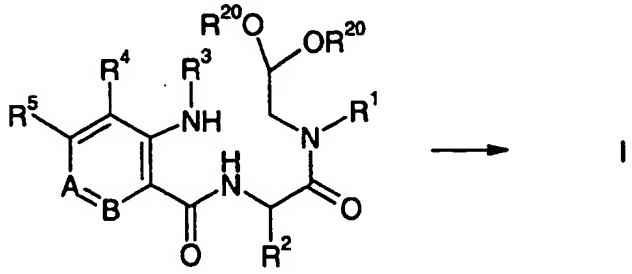
A is CR^6; and

B is CR^7,

or a stereoisomer or a mixture of stereoisomers thereof in any ratio, or a physiologically acceptable salt thereof.

5. (Currently amended) ~~A~~The compound according to claim 1, wherein one of A and B is nitrogen and the other is CR^6 or CR^7, or a stereoisomer or a mixture of stereoisomers thereof in any ratio, or a physiologically acceptable salt thereof.

6. (Currently amended) A process for the preparation of ~~a~~the compound of the formula I as defined in claim 1 or wherein one or more functional groups present therein can be in protected form or in the form of a precursor group, comprising treating a compound of the formula VI,



VI

wherein A, B, R^1, R^2, R^3, R^4 and R^5 are as defined in claim 1 or one or more functional groups present therein can be in protected form or in the form of a precursor group and R^{20} is (C_1-C_4)-alkyl, with an acid.

177350

Scientific & Technical Information Center

Online Database Search Form

MEJ

Search requests relating to published applications, patent families, and litigation can b
form and clicking on "Send."

* indicates mandatory information.

*** Tech Center:**

(•) TC 1600 ( ) TC 1700 ( ) TC 2100 ( ) TC 2600 ( ) TC 2800
( ) TC 2900 ( ) TC 3600 ( ) TC 3700 ( ) Law Lib ( ) Other

Your Contact Information:

2-nn amdt

* Email Address: tamthom.ngo@uspto.gov
(*e.g., Susan.Smith@uspto.gov*)

Mailbox No.: REM – 5C18

*** Case serial number:** 10/ 829,064
If not related to a patent application, please enter NA here.

RECEIVED
JAN 24 2006
TECH CENTER 1700

Class / Subclass(es) 514/250 ; 544/250, 251, 252

Earliest Priority Filing Date: 04-24-2003

Format preferred for results:
☑ Paper ☐ E-mail ☐ Diskette

Provide detailed information on your search topic: Query attached

- In your own words, describe in detail the concepts or subjects you want us to se
- Include synonyms, keywords, and acronyms. Define terms that have special me
- For Chemical Structure Searches Only
  Include the elected species or structures, keywords, synonyms, acronyms, and
- For Sequence Searches Only
  Include all pertinent information (parent, child, divisional, or issued patent numb
  serial number.
- For Foreign Patent Family Searches Only
  Include the country name and patent number.
- Provide examples or give us relevant citations, authors, etc., if known.
- FAX or send the **abstract, pertinent claims** (not all of the claims), **drawings,** c
  EIC or branch library.

Enter your Search Topic Information below:

SERVICES
Database Search submit
PLUS Search submit
Book/Article Delivery submit
Book/Journal Purchase submit
Foreign Patents submit
Telework Support
Translation submit
SIRA Automation Training
STIC Demos & Events

RESOURCES
STIC Online Catalog
Databases
E-Books search
E-Journals search
Legal Tools
Nanotechnology
Reference Tools

STIC
About Us
FAQ
Locations & Hours
News
Site Map
Staff

Search STIC Site
GO

```
=> d his ful

     (FILE 'HOME' ENTERED AT 14:57:33 ON 03 FEB 2006)

     FILE 'REGISTRY' ENTERED AT 14:57:37 ON 03 FEB 2006
L1             STR
L2           3 SEA SSS SAM L1
L3          62 SEA SSS FUL L1

     FILE 'HCAPLUS' ENTERED AT 15:00:39 ON 03 FEB 2006
L4           2 SEA ABB=ON  PLU=ON  L3
L5           1 SEA ABB=ON  PLU=ON  US200!-829064/APPS
L6           1 SEA ABB=ON  PLU=ON  L4 AND L5

     FILE 'BEILSTEIN' ENTERED AT 15:01:08 ON 03 FEB 2006
L7           0 SEA SSS SAM L1
L8           1 SEA SSS FUL L1

     FILE 'MARPAT' ENTERED AT 15:01:29 ON 03 FEB 2006
L9           0 SEA SSS SAM L1
L10          1 SEA SSS FUL L1
L11          0 SEA ABB=ON  PLU=ON  L10 NOT L4


     FILE HOME

     FILE REGISTRY
     Property values tagged with IC are from the ZIC/VINITI data file
     provided by InfoChem.

     STRUCTURE FILE UPDATES:    1 FEB 2006  HIGHEST RN 873294-13-4
     DICTIONARY FILE UPDATES:   1 FEB 2006  HIGHEST RN 873294-13-4

     New CAS Information Use Policies, enter HELP USAGETERMS for details.

     TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

       Please note that search-term pricing does apply when
       conducting SmartSELECT searches.

     ************************************************************
     *                                                          *
     * The CA roles and document type information have been removed from *
     * the IDE default display format and the ED field has been added,   *
     * effective March 20, 2005.  A new display format, IDERL, is now    *
     * available and contains the CA role and document type information. *
     *                                                          *
     ************************************************************

     Structure search iteration limits have been increased.  See HELP SLIMITS
     for details.

     REGISTRY includes numerically searchable data for experimental and
     predicted properties as well as tags indicating availability of
     experimental property data in the original document.  For information
     on property searching in REGISTRY, refer to:

     http://www.cas.org/ONLINE/UG/regprops.html
```

FILE HCAPLUS

FILE COVERS 1907 - 3 Feb 2006 VOL 144 ISS 7
FILE LAST UPDATED: 2 Feb 2006 (20060202/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate substance identification.

FILE BEILSTEIN
FILE LAST UPDATED ON JANUARY 17, 2006

FILE COVERS 1771 TO 2005.
FILE CONTAINS 9,428,406 SUBSTANCES

>>>PLEASE NOTE: Reaction Data and substance data are stored in separate documents and can not be searched together in one query. Reaction data for BEILSTEIN compounds may be displayed immediately with the display codes PRE (preparations) and REA (reactions). A substance answer set retrieved after the search for a chemical name, a compounds with available reaction information by combining with PRE/FA, REA/FA or more generally with RX/FA. The BEILSTEIN Registry Number (BRN) is the link between a BEILSTEIN compound and belonging reactions. For mo detailed reaction searches BRNs can be searched as reaction partner BRNs Reactant BRN (RX.RBRN) or Product BRN (RX.PBRN).<<<

>>> FOR SEARCHING PREPARATIONS SEE HELP PRE <<<

****
* PLEASE NOTE THAT THERE ARE NO FORMATS FREE OF COST. *
* SET NOTICE FEATURE: THE COST ESTIMATES CALCULATED FOR SET NOTICE *
* ARE BASED ON THE HIGHEST PRICE CATEGORY. THEREFORE; THESE *
* ESTIMATES MAY NOT REFLECT THE ACTUAL COSTS. *
* FOR PRICE INFORMATION SEE HELP COST *
****

NEW

* **PATENT NUMBERS (PN) AND BABS ACCESSION NUMBERS (BABSAN) CAN NOW BE SEARCHED, SELECTED AND TRANSFERRED.**
* **NEW DISPLAY FORMATS ALLREF, ALLP AND BABSAN SHOW ALL REFERENCES, ALL PATENT REFERENCES, OR ALL BABS ACCESSION NUMBERS FOR A COMPOUND AT A GLANCE.**

FILE MARPAT
FILE CONTENT: 1969-PRESENT (VOL 144 ISS 5 (20060127/ED)

SOME MARPAT RECORDS ARE DERIVED FROM INPI DATA FOR 1969-1987

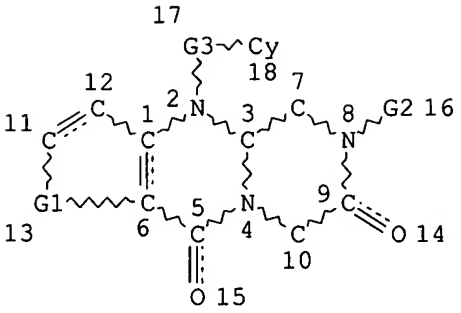
MOST RECENT CITATIONS FOR PATENTS FROM FIVE MAJOR ISSUING AGENCIES
(COVERAGE TO THESE DATES IS NOT COMPLETE):

US 6962795 08 NOV 2005
DE 1020040544 17 NOV 2005
EP 1595877 16 NOV 2005
JP 2005328067 24 NOV 2005
WO 2005112644 01 DEC 2005

Expanded G-group definition display now available.

New CAS Information Use Policies, enter HELP USAGETERMS for details.

```
=> fil reg
FILE 'REGISTRY' ENTERED AT 15:02:05 ON 03 FEB 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2006 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES:    1 FEB 2006  HIGHEST RN 873294-13-4
DICTIONARY FILE UPDATES:   1 FEB 2006  HIGHEST RN 873294-13-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH JULY 14, 2005

  Please note that search-term pricing does apply when
  conducting SmartSELECT searches.

*********************************************************************
*                                                                   *
* The CA roles and document type information have been removed from *
* the IDE default display format and the ED field has been added,   *
* effective March 20, 2005.  A new display format, IDERL, is now    *
* available and contains the CA role and document type information. *
*                                                                   *
*********************************************************************

Structure search iteration limits have been increased.  See HELP SLIMITS
for details.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document.  For information
on property searching in REGISTRY, refer to:

http://www.cas.org/ONLINE/UG/regprops.html

=> d que stat l3
L1              STR
```



C≡C @19 @20 N≡C @21 @22 Cb @23

VAR G1=19-11 20-6/21-11 22-6/22-11 21-6
VAR G2=23/AK
REP G3=(1-5) CH2
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
GGCAT IS SAT AT 23
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 23

STEREO ATTRIBUTES: NONE
L3 62 SEA FILE=REGISTRY SSS FUL L1

100.0% PROCESSED 259 ITERATIONS 62 ANSWERS
SEARCH TIME: 00.00.02

=> fil hcap
FILE 'HCAPLUS' ENTERED AT 15:02:10 ON 03 FEB 2006
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.

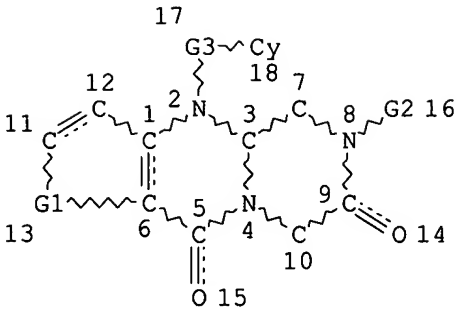
FILE COVERS 1907 - 3 Feb 2006 VOL 144 ISS 7
FILE LAST UPDATED: 2 Feb 2006 (20060202/ED)

New CAS Information Use Policies, enter HELP USAGETERMS for details.

This file contains CAS Registry Numbers for easy and accurate
substance identification.

=> d que stat 14

L1 STR



C≡C @19 @20 N≡C @21 @22 Cb @23

VAR G1=19-11 20-6/21-11 22-6/22-11 21-6
VAR G2=23/AK
REP G3=(1-5) CH2
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
GGCAT IS SAT AT 23
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS 23

STEREO ATTRIBUTES: NONE
L3 62 SEA FILE=REGISTRY SSS FUL L1
L4 2 SEA FILE=HCAPLUS ABB=ON PLU=ON L3

=> d l4 ibib abs hitstr 1-2

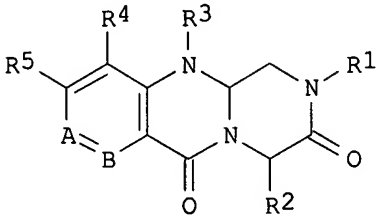
L4 ANSWER 1 OF 2 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 2004:898609 HCAPLUS
DOCUMENT NUMBER: 141:366248
TITLE: A preparation of triaza- and tetraazaanthracenedione derivatives, useful as cardiovascular agents
INVENTOR(S): Weichert, Andreas; Strobel, Hartmut; Wohlfart, Paulus; Patek, Marcel; Smrcina, Martin; Weichsel, Aleksandra
PATENT ASSIGNEE(S): Aventis Pharma Deutschland GmbH, Germany
SOURCE: Eur. Pat. Appl., 32 pp.
CODEN: EPXXDW
DOCUMENT TYPE: Patent
LANGUAGE: English
FAMILY ACC. NUM. COUNT: 1
PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
EP 1471066	A1	20041027	EP 2003-9286	20030424
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR, BG, CZ, EE, HU, SK				
CA 2523196	AA	20041104	CA 2004-2523196	20040413
WO 2004094425	A1	20041104	WO 2004-EP3851	20040413
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BW, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NA, NI,				

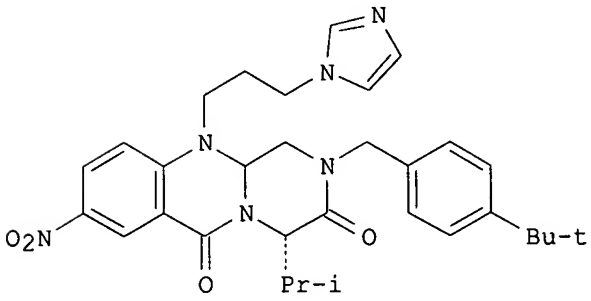
NO, NZ, OM, PG, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, SY,
TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW
RW: BW, GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AM, AZ,
BY, KG, KZ, MD, RU, TJ, TM, AT, BE, BG, CH, CY, CZ, DE, DK, EE,
ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PL, PT, RO, SE, SI,
SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN,
TD, TG

US 2004248900 A1 20041209 US 2004-829064 20040421
PRIORITY APPLN. INFO.: EP 2003-9286 A 20030424
US 2003-499521P P 20030902
WO 2004-EP3851 W 20040413

OTHER SOURCE(S): MARPAT 141:366248
GI



I



II

AB The invention relates to a preparation of triaza- and tetraaza-anthracenedione derivs. of formula I [wherein: A and B are independently selected from N, CH, C-halogen, C-NO2, or C-CN, etc., but A and B are not simultaneously N; R1 is (un)substituted (cyclo)alkyl or alk(en/yn)yl; R2 is H, alkyl, CF3, or (CH2)0-2-(phenyl/imidazolyl), etc.; R3 is (CH2)1-4-(phenyl/imidazolyl/triazolyl) or (CH2)1-4-pyridinyl, etc.; R4 and R5 are independently selected from H, alkyl, CF3, or alkoxy, etc.], useful as cardiovascular agents. The title compds. are useful in the treatment of various disease states including cardiovascular disorders such as atherosclerosis, thrombosis, coronary artery disease, hypertension, and cardiac insufficiency. They upregulate the expression of the enzyme endothelial nitric oxide (NO) synthase and can be applied in conditions in which an increased expression of said enzyme or an increased NO level or the normalization of a decreased NO level is desired. For instance, triazaanthracenedione derivative II (activation of eNOS transcription: EC50 = 1.2 μM) was prepared via heterocyclization of 4-tert-butylbenzylamine, Fmoc-L-valine, 2-fluoro-5-nitrobenzoic acid, 2-bromo-1,1-diethoxyethane, and 3-(imidazol-1-yl)propylamine (example 2, no yield data).

IT **779343-75-8P 779343-77-0P 779343-79-2P**
779343-81-6P 779343-83-8P 779343-85-0P
779343-87-2P 779343-89-4P 779343-91-8P
779343-93-0P 779343-95-2P 779343-97-4P

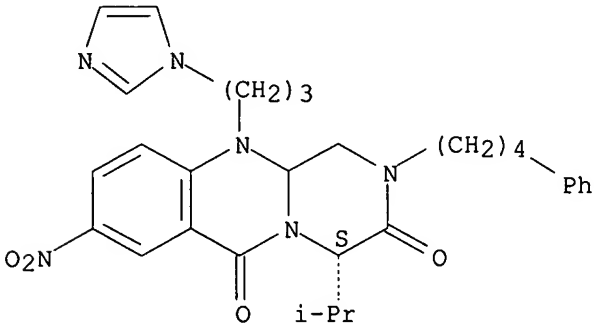
779343-99-6P 779344-01-3P 779344-03-5P
779344-05-7P 779344-07-9P 779344-08-0P
779344-09-1P 779344-10-4P 779344-11-5P
779344-12-6P 779344-13-7P 779344-14-8P
779344-15-9P 779344-16-0P 779344-17-1P
779344-18-2P 779344-19-3P 779344-20-6P
779344-21-7P 779344-22-8P 779344-23-9P
779344-24-0P 779344-25-1P 779344-27-3P
779344-29-5P 779344-32-0P 779344-34-2P
779344-36-4P
RL: PAC (Pharmacological activity); SPN (Synthetic preparation); THU (Therapeutic use); BIOL (Biological study); PREP (Preparation); USES (Uses)
(preparation of triaza- and tetraaza-anthracenedione derivs., useful as cardiovascular agents)

RN 779343-75-8 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-8-nitro-2-(4-phenylbutyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

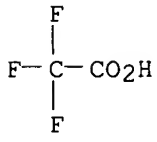
CRN 779343-74-7
CMF C30 H36 N6 O4

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2



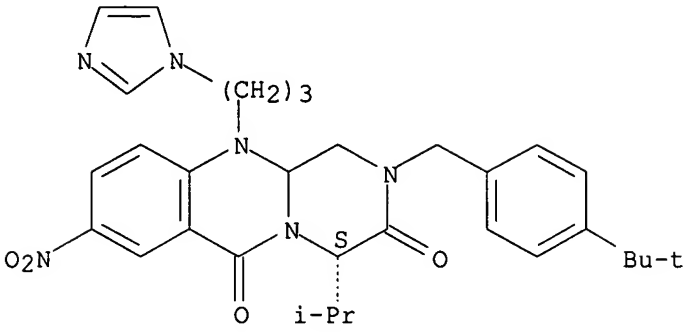
RN 779343-77-0 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-8-nitro-, (4S)-, mono(trifluoroacetate) (9CI)

(CA INDEX NAME)

CM 1

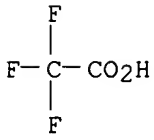
CRN 779343-76-9
CMF C31 H38 N6 O4

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2

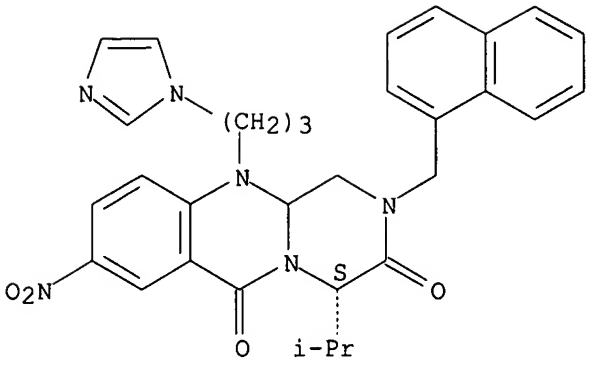


RN 779343-79-2 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-2-(1-naphthalenylmethyl)-8-nitro-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

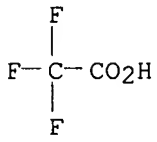
CRN 779343-78-1
CMF C31 H32 N6 O4

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2

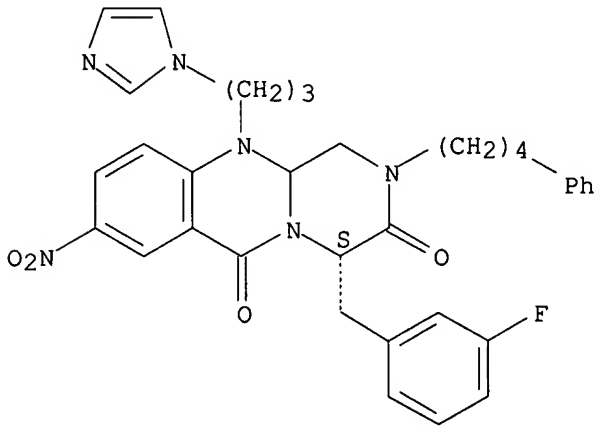


RN 779343-81-6 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 4-[(3-fluorophenyl)methyl]-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-8-nitro-2-(4-phenylbutyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

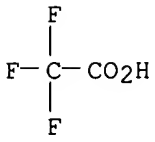
CRN 779343-80-5
CMF C34 H35 F N6 O4

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2

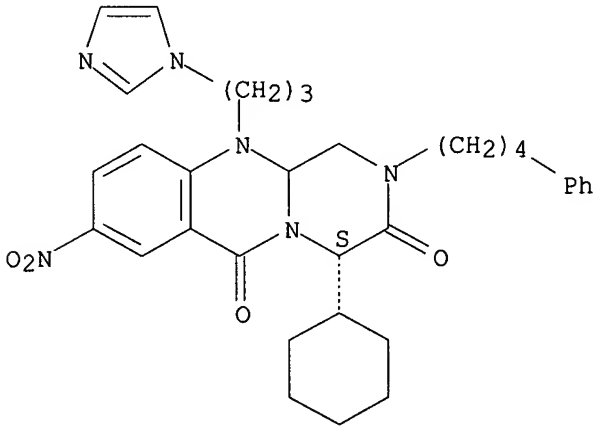


RN 779343-83-8 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 4-cyclohexyl-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-8-nitro-2-(4-phenylbutyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

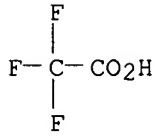
CRN 779343-82-7
CMF C33 H40 N6 O4

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2



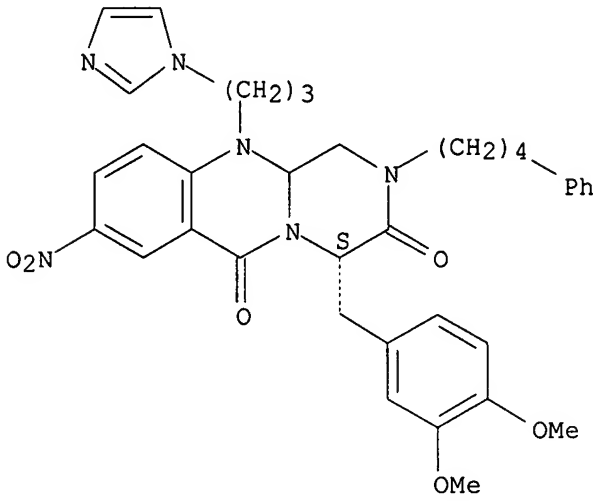
RN 779343-85-0 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 4-[(3,4-dimethoxyphenyl)methyl]-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-

yl)propyl]-8-nitro-2-(4-phenylbutyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

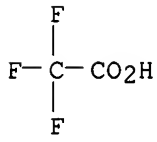
CRN 779343-84-9
CMF C36 H40 N6 O6

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2

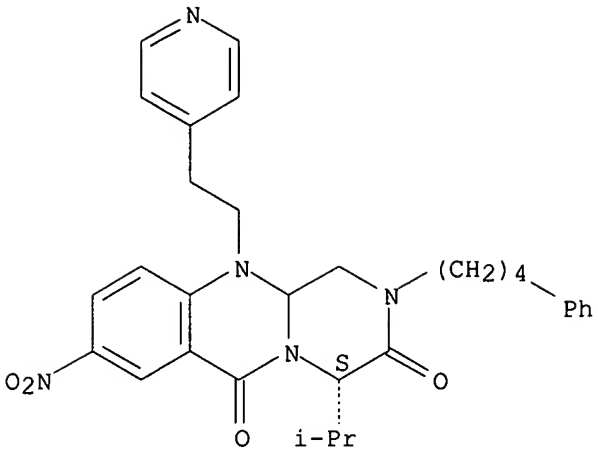


RN 779343-87-2 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-4-(1-methylethyl)-8-nitro-2-(4-phenylbutyl)-11-[2-(4-pyridinyl)ethyl]-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

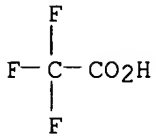
CRN 779343-86-1
CMF C31 H35 N5 O4

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2

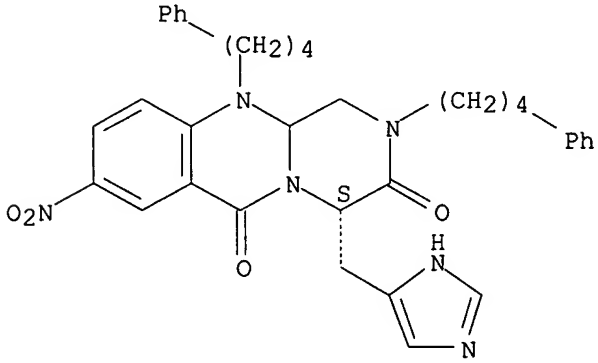


RN 779343-89-4 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-4-(1H-imidazol-4-ylmethyl)-8-nitro-2,11-bis(4-phenylbutyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

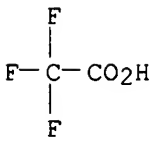
CRN 779343-88-3
CMF C35 H38 N6 O4

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2

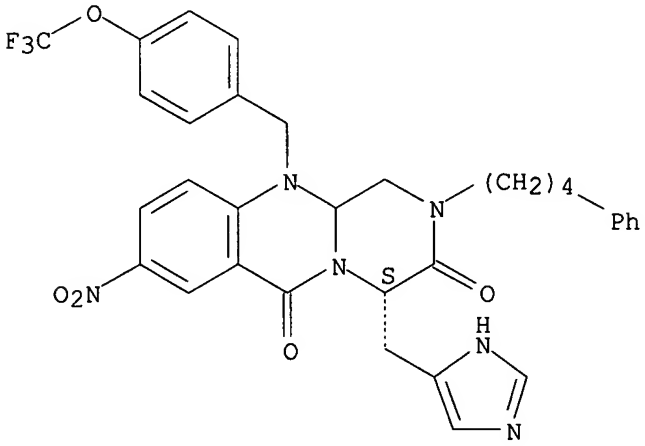


RN 779343-91-8 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-4-(1H-imidazol-4-ylmethyl)-8-nitro-2-(4-phenylbutyl)-11-[[4-(trifluoromethoxy)phenyl]methyl]-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

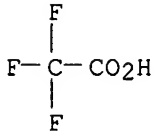
CRN 779343-90-7
CMF C33 H31 F3 N6 O5

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2

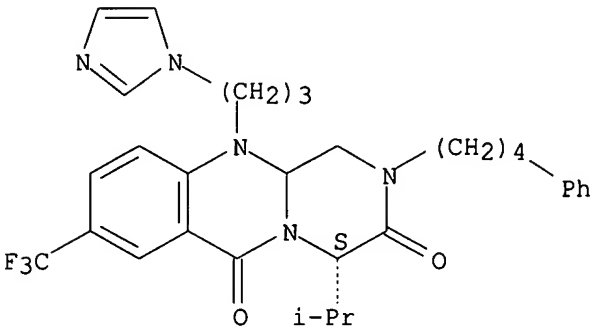


RN 779343-93-0 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-2-(4-phenylbutyl)-8-(trifluoromethyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

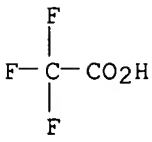
CRN 779343-92-9
CMF C31 H36 F3 N5 O2

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2

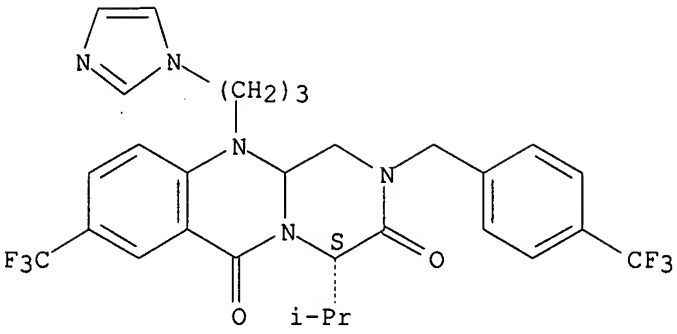


RN 779343-95-2 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-8-(trifluoromethyl)-2-[[4-(trifluoromethyl)phenyl]methyl]-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

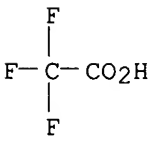
CRN 779343-94-1
CMF C29 H29 F6 N5 O2

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2

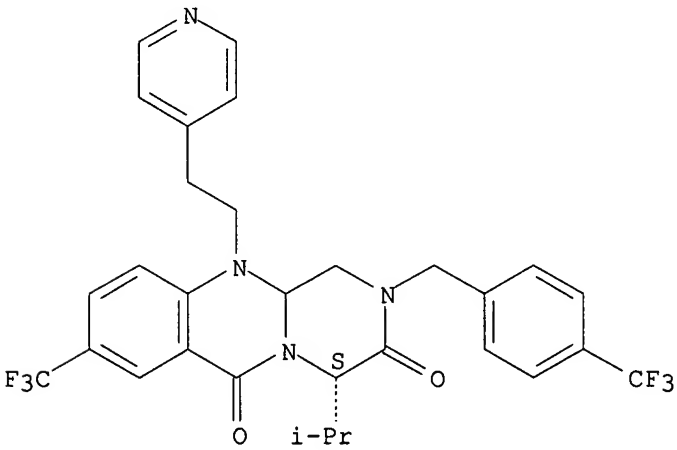


RN 779343-97-4 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 1,2,11,11a-tetrahydro-4-(1-methylethyl)-11-[2-(4-pyridinyl)ethyl]-8-(trifluoromethyl)-2-[[4-(trifluoromethyl)phenyl]methyl]-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

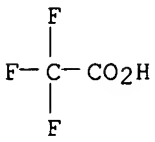
CRN 779343-96-3
CMF C30 H28 F6 N4 O2

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2

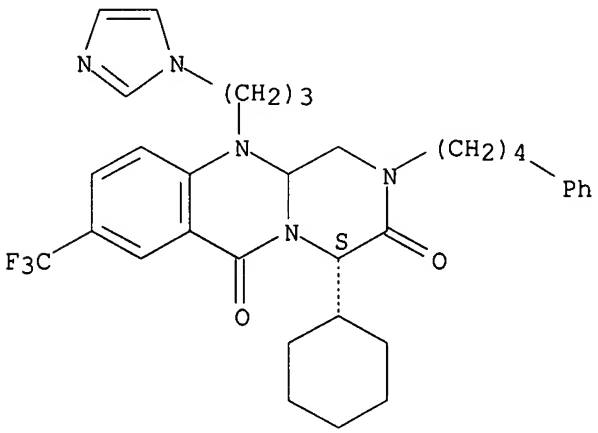


RN 779343-99-6 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 4-cyclohexyl-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-2-(4-phenylbutyl)-8-(trifluoromethyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

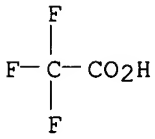
CRN 779343-98-5
CMF C34 H40 F3 N5 O2

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2



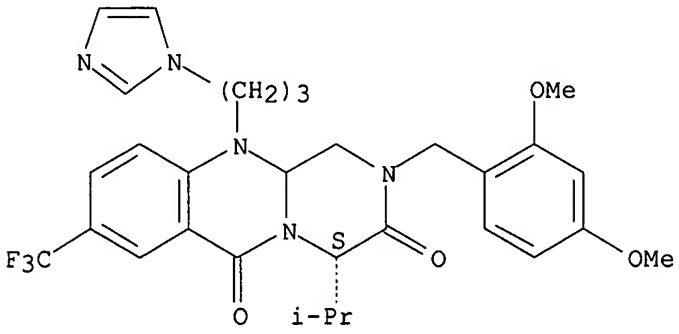
RN 779344-01-3 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 2-[(2,4-

dimethoxyphenyl)methyl]-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-8-(trifluoromethyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

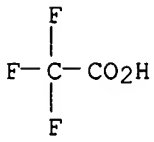
CRN 779344-00-2
CMF C30 H34 F3 N5 O4

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2

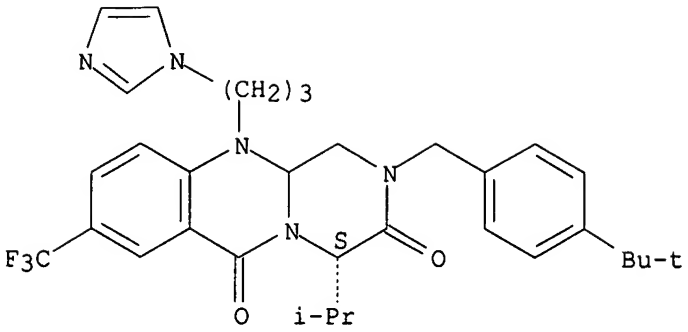


RN 779344-03-5 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-8-(trifluoromethyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

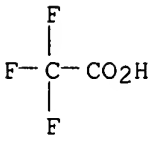
CRN 779344-02-4
CMF C32 H38 F3 N5 O2

Absolute stereochemistry.



CM 2

CRN 76-05-1
CMF C2 H F3 O2

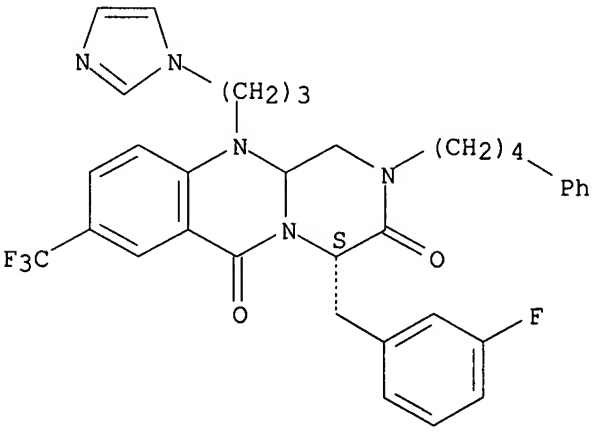


RN 779344-05-7 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 4-[(3-fluorophenyl)methyl]-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-2-(4-phenylbutyl)-8-(trifluoromethyl)-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

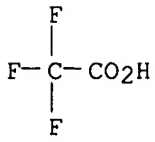
CRN 779344-04-6
CMF C35 H35 F4 N5 O2

Absolute stereochemistry.

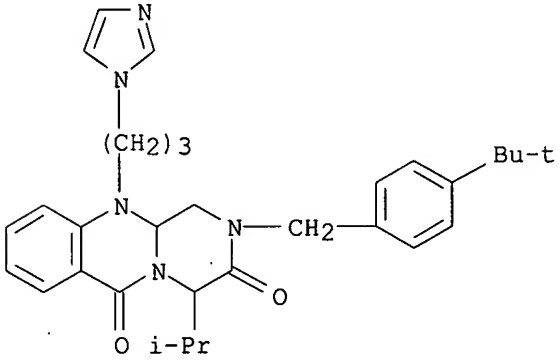


CM 2

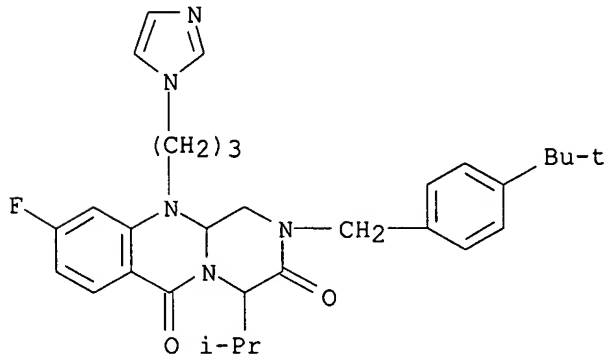
CRN 76-05-1
CMF C2 H F3 O2



RN 779344-07-9 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)- (9CI) (CA INDEX NAME)

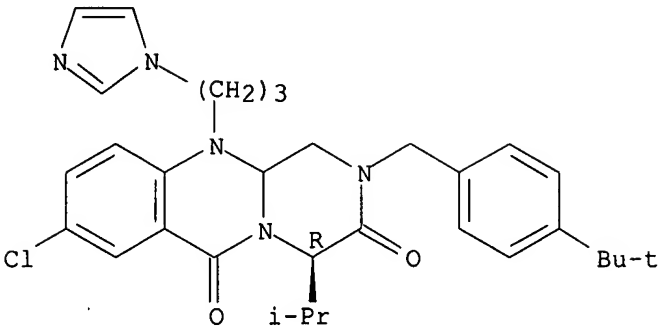


RN 779344-08-0 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-9-fluoro-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)- (9CI) (CA INDEX NAME)



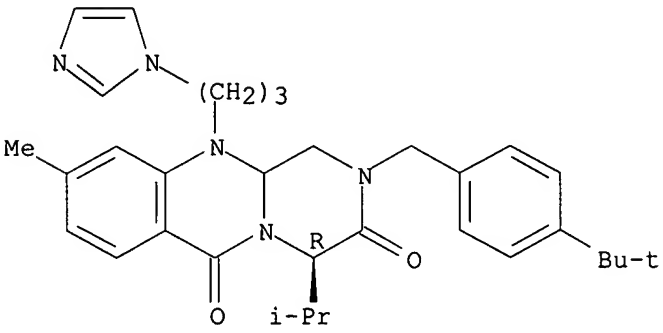
RN 779344-09-1 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 8-chloro-2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-, (4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



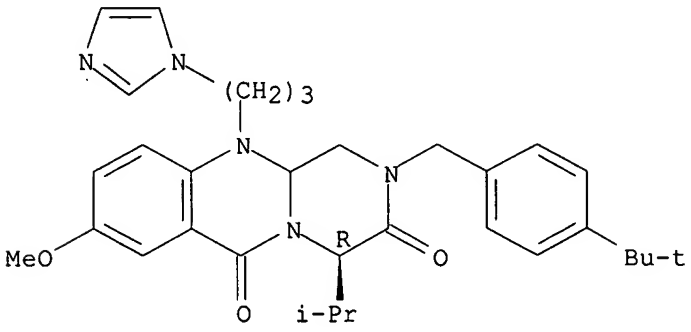
RN 779344-10-4 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-9-methyl-4-(1-methylethyl)-, (4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



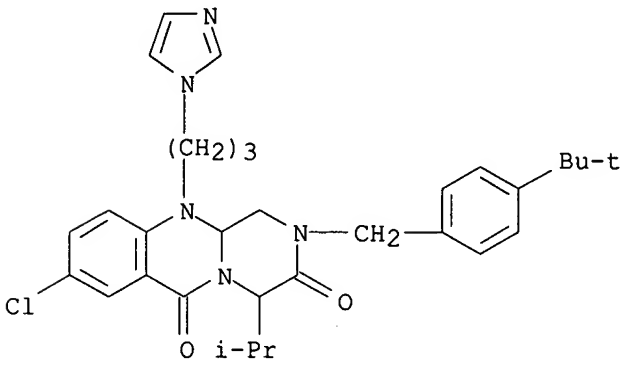
RN 779344-11-5 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-8-methoxy-4-(1-methylethyl)-, (4R)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.

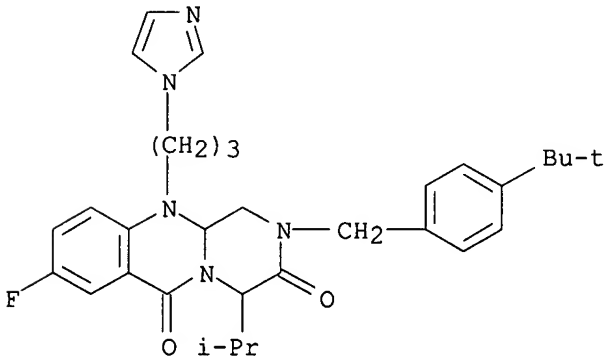


RN 779344-12-6 HCAPLUS

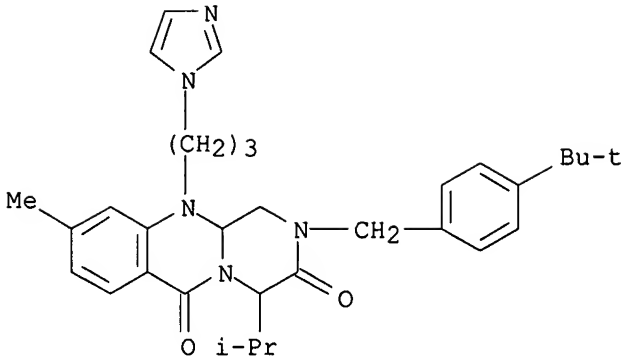
CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 8-chloro-2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)- (9CI) (CA INDEX NAME)



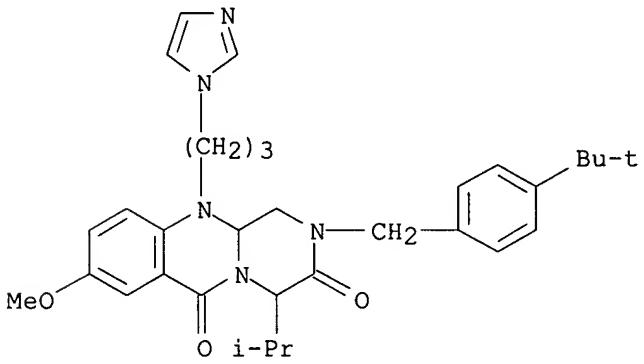
RN 779344-13-7 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-8-fluoro-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)- (9CI) (CA INDEX NAME)



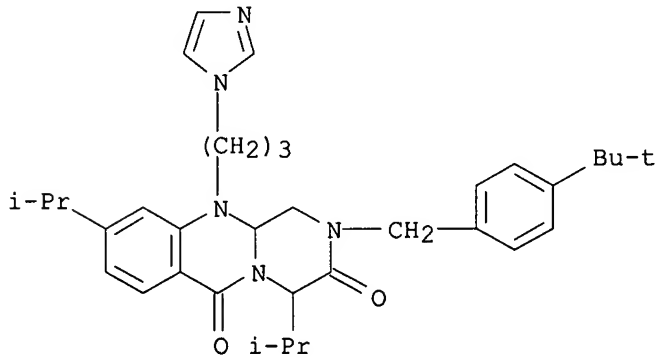
RN 779344-14-8 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-9-methyl-4-(1-methylethyl)- (9CI) (CA INDEX NAME)



RN 779344-15-9 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-8-methoxy-4-(1-methylethyl)- (9CI) (CA INDEX NAME)



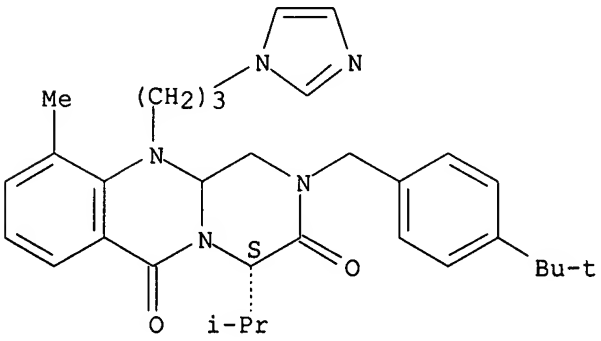
RN 779344-16-0 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4,9-bis(1-methylethyl)- (9CI) (CA INDEX NAME)



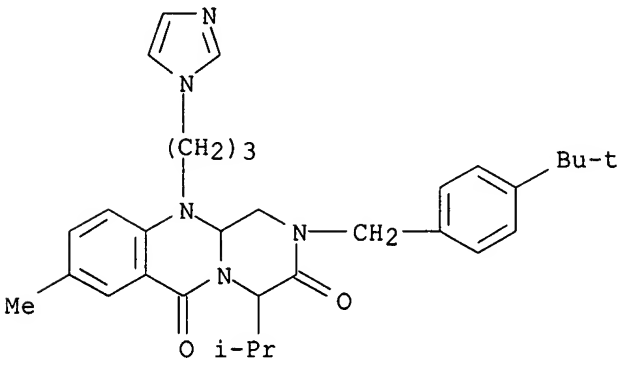
RN 779344-17-1 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-

dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-10-methyl-4-(1-methylethyl)-, (4S)- (9CI) (CA INDEX NAME)

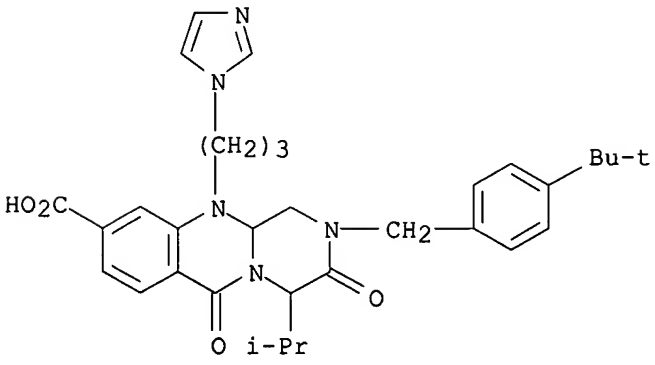
Absolute stereochemistry.



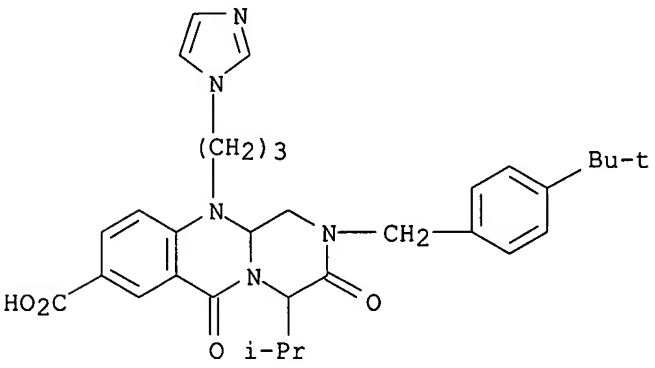
RN 779344-18-2 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-8-methyl-4-(1-methylethyl)- (9CI) (CA INDEX NAME)



RN 779344-19-3 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-9-carboxylic acid, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-1,3,4,6,11,11a-hexahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-3,6-dioxo- (9CI) (CA INDEX NAME)

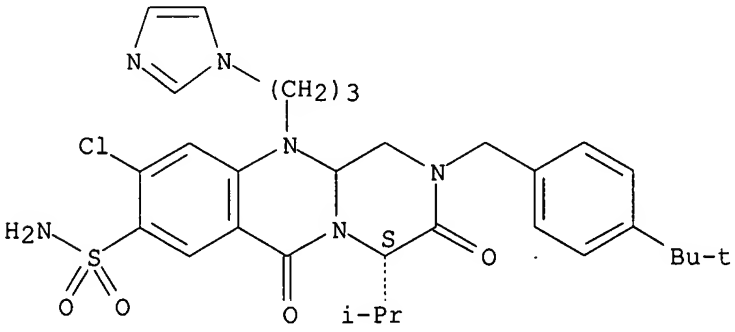


RN 779344-20-6 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-8-carboxylic acid, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-1,3,4,6,11,11a-hexahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-3,6-dioxo- (9CI) (CA INDEX NAME)



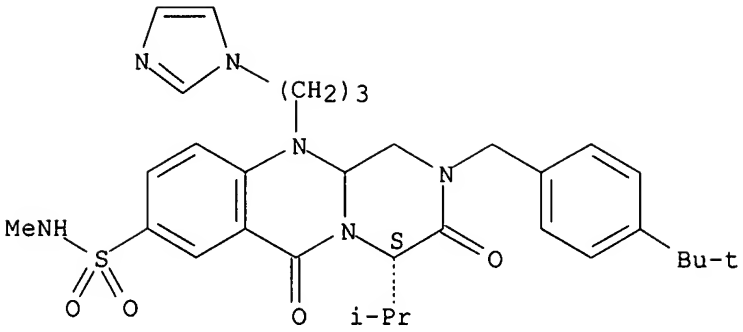
RN 779344-21-7 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-8-sulfonamide, 9-chloro-2-[[4-(1,1-dimethylethyl)phenyl]methyl]-1,3,4,6,11,11a-hexahydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-3,6-dioxo-, (4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



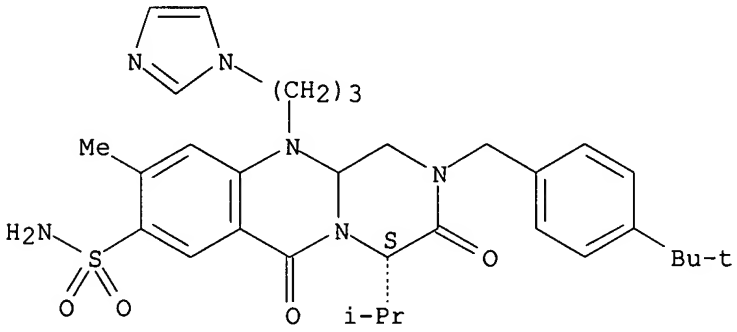
RN 779344-22-8 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-8-sulfonamide, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-1,3,4,6,11,11a-hexahydro-11-[3-(1H-imidazol-1-yl)propyl]-N-methyl-4-(1-methylethyl)-3,6-dioxo-, (4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



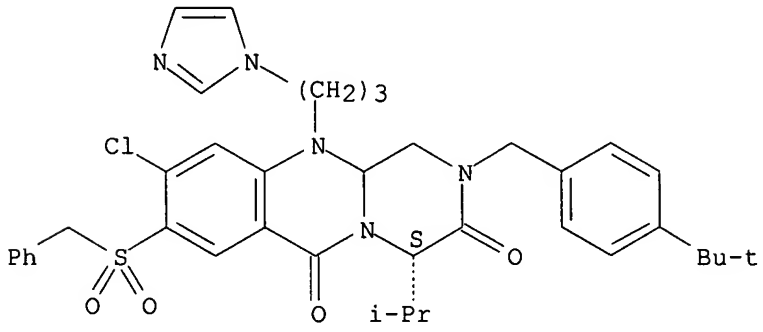
RN 779344-23-9 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-8-sulfonamide, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-1,3,4,6,11,11a-hexahydro-11-[3-(1H-imidazol-1-yl)propyl]-9-methyl-4-(1-methylethyl)-3,6-dioxo-, (4S)- (9CI) (CA INDEX NAME)

Absolute stereochemistry.



RN 779344-24-0 HCAPLUS
CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 9-chloro-2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-8-[(phenylmethyl)sulfonyl]-, (4S)- (9CI) (CA INDEX NAME)

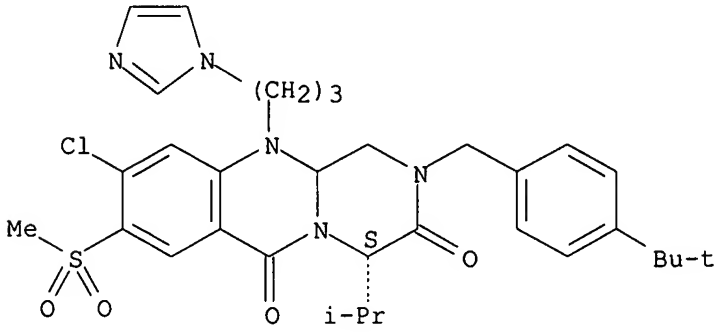
Absolute stereochemistry.



RN 779344-25-1 HCAPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 9-chloro-2-[[4-(1,1-dimethylethyl)phenyl]methyl]-11,11a-dihydro-11-[3-(1H-imidazol-1-yl)propyl]-4-(1-methylethyl)-8-(methylsulfonyl)-, (4S)- (9CI) (CA INDEX NAME)

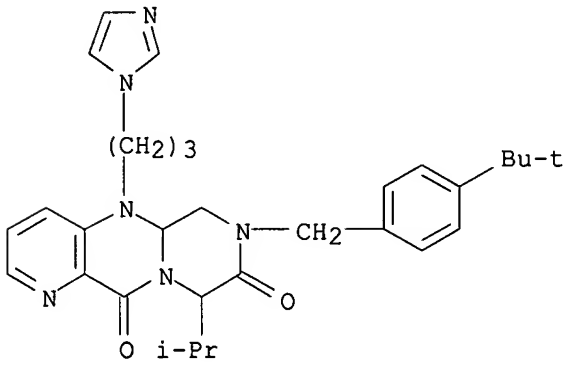
Absolute stereochemistry.



RN 779344-27-3 HCAPLUS
CN 7H-Pyrazino[1,2-a]pyrido[3,2-d]pyrimidine-8,11(5H,9H)-dione, 7-[[4-(1,1-dimethylethyl)phenyl]methyl]-5a,6-dihydro-5-[3-(1H-imidazol-1-yl)propyl]-9-(1-methylethyl)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

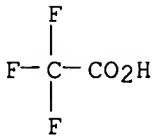
CM 1

CRN 779344-26-2
CMF C30 H38 N6 O2



CM 2

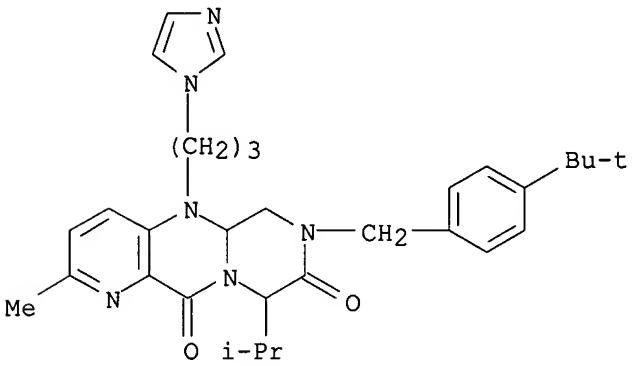
CRN 76-05-1
CMF C2 H F3 O2



RN 779344-29-5 HCAPLUS
CN 7H-Pyrazino[1,2-a]pyrido[3,2-d]pyrimidine-8,11(5H,9H)-dione, 7-[[4-(1,1-dimethylethyl)phenyl]methyl]-5a,6-dihydro-5-[3-(1H-imidazol-1-yl)propyl]-2-methyl-9-(1-methylethyl)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

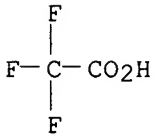
CM 1

CRN 779344-28-4
CMF C31 H40 N6 O2



CM 2

CRN 76-05-1
CMF C2 H F3 O2

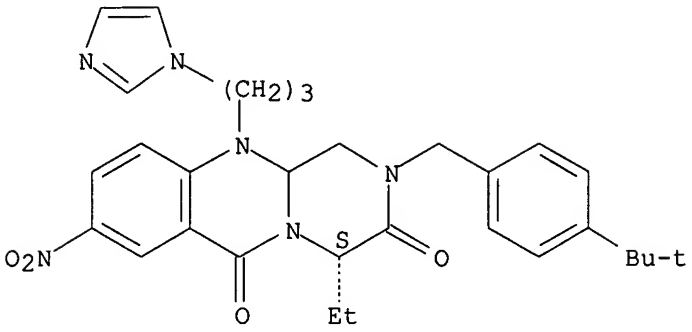


RN 779344-32-0 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-4-ethyl-1,2,11,11a-tetrahydro-11-[3-(1H-imidazol-1-yl)propyl]-8-nitro-, (4S)-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

CM 1

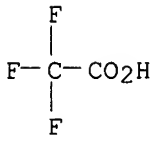
CRN 779344-31-9
CMF C30 H36 N6 O4

Absolute stereochemistry.



CM 2

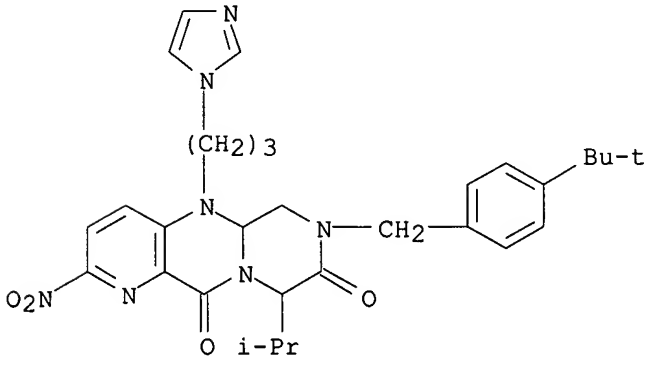
CRN 76-05-1
CMF C2 H F3 O2



RN 779344-34-2 HCAPLUS
CN 7H-Pyrazino[1,2-a]pyrido[3,2-d]pyrimidine-8,11(5H,9H)-dione, 7-[[4-(1,1-dimethylethyl)phenyl]methyl]-5a,6-dihydro-5-[3-(1H-imidazol-1-yl)propyl]-9-(1-methylethyl)-2-nitro-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

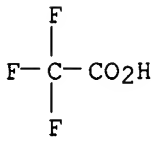
CM 1

CRN 779344-33-1
CMF C30 H37 N7 O4



CM 2

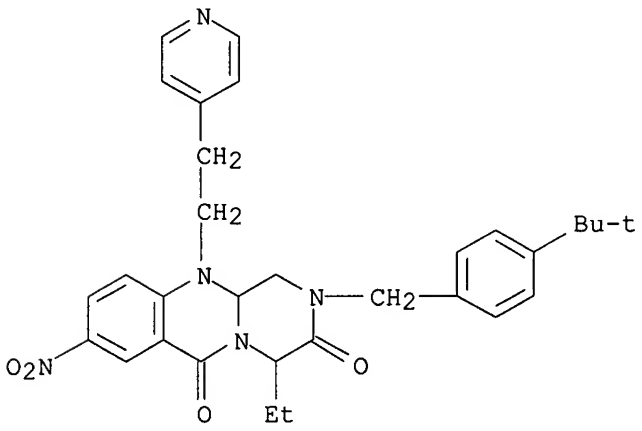
CRN 76-05-1
CMF C2 H F3 O2



RN 779344-36-4 HCAPLUS
CN 6H-Pyrazino[2,1-b]quinazoline-3,6(4H)-dione, 2-[[4-(1,1-dimethylethyl)phenyl]methyl]-4-ethyl-1,2,11,11a-tetrahydro-8-nitro-11-[2-(4-pyridinyl)ethyl]-, mono(trifluoroacetate) (9CI) (CA INDEX NAME)

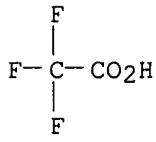
CM 1

CRN 779344-35-3
CMF C31 H35 N5 O4



CM 2

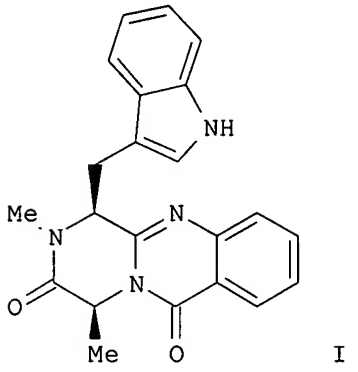
CRN 76-05-1
CMF C2 H F3 O2



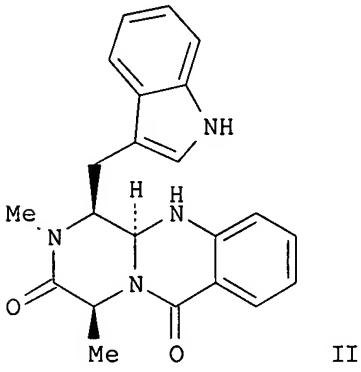
REFERENCE COUNT: 3 THERE ARE 3 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L4 ANSWER 2 OF 2 HCAPLUS COPYRIGHT 2006 ACS on STN
ACCESSION NUMBER: 1999:529844 HCAPLUS

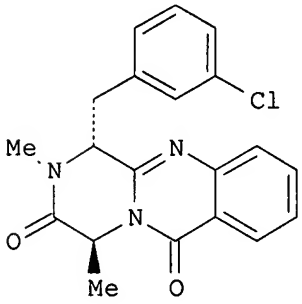
DOCUMENT NUMBER: 131:286484
TITLE: Synthesis and stereochemistry of 11,11a-dihydro derivatives of (4S)-2,4-dimethyl-2,4-dihydro-1H-pyrazino[2,1-b]quinazoline-3,6-diones. A new transannular rearrangement proposal
AUTHOR(S): Martin-Santamaria, Sonsoles; Espada, Modesta; Avendano, Carmen
CORPORATE SOURCE: Departamento de Quimica Organica y Farmaceutica Facultad de Farmacia, Universidad Complutense, Madrid, 28040, Spain
SOURCE: Journal of Organic Chemistry (1999), 64(19), 7233-7235
CODEN: JOCEAH; ISSN: 0022-3263
PUBLISHER: American Chemical Society
DOCUMENT TYPE: Journal
LANGUAGE: English
GI



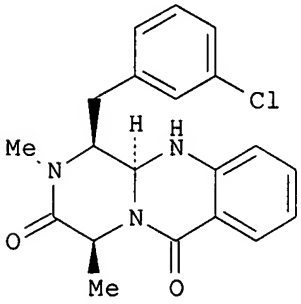
I



II



III



IV

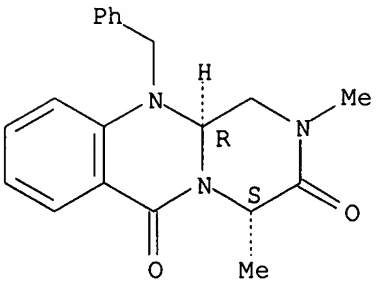
AB Reduction of the (indolylmethyl)dihydropyrazinoquinazolinedione I by NaBH4/EtOH gave the tetrahydropyrazinoquinazolinedione II, whereas similar reduction of (chlorobenzyl)dihydropyrazinoquinazolinedione III gave the tetrahydropyrazinoquinazolinedione with epimerization at C-1. A proposed mechanism for the epimerization involved transannular rearrangement and formation of a ten-membered-ring anion intermediate.

IT **246542-03-0P**
RL: SPN (Synthetic preparation); PREP (Preparation)
(transannular rearrangement mechanism in borohydride reduction/epimerization of dihydrodimethylpyrazinoquinazolinediones)

RN 246542-03-0 HCAPLUS

CN 2H-Pyrazino[2,1-b]quinazoline-3,6(1H,4H)-dione, 11,11a-dihydro-2,4-dimethyl-11-(phenylmethyl)-, (4S,11aR)- (9CI) (CA INDEX NAME)

Absolute stereochemistry. Rotation (-).



REFERENCE COUNT: 16 THERE ARE 16 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

=> file beist
'BEIST' IS NOT A VALID FILE NAME
SESSION CONTINUES IN FILE 'HCAPLUS'
Enter "HELP FILE NAMES" at an arrow prompt (=>) for a list of files that are available. If you have requested multiple files, you can specify a corrected file name or you can enter "IGNORE" to continue accessing the remaining file names entered.

=> fil beilst
FILE 'BEILSTEIN' ENTERED AT 15:02:42 ON 03 FEB 2006
COPYRIGHT (c) 2006 Beilstein-Institut zur Foerderung der Chemischen Wissenschaften licensed to Beilstein GmbH and MDL Information Systems GmbH

FILE LAST UPDATED ON JANUARY 17, 2006

FILE COVERS 1771 TO 2005.
*** FILE CONTAINS 9,428,406 SUBSTANCES ***

>>>PLEASE NOTE: Reaction Data and substance data are stored in separate documents and can not be searched together in one query. Reaction data for BEILSTEIN compounds may be displayed immediately with the display codes PRE (preparations) and REA (reactions). A substance answer set retrieved after the search for a chemical name, a compounds with available reaction information by combining with PRE/FA, REA/FA or more generally with RX/FA. The BEILSTEIN Registry Number (BRN) is the link between a BEILSTEIN compound and belonging reactions. For mo detailed reaction searches BRNs can be searched as reaction partner BRNs Reactant BRN (RX.RBRN) or Product BRN (RX.PBRN).<<<

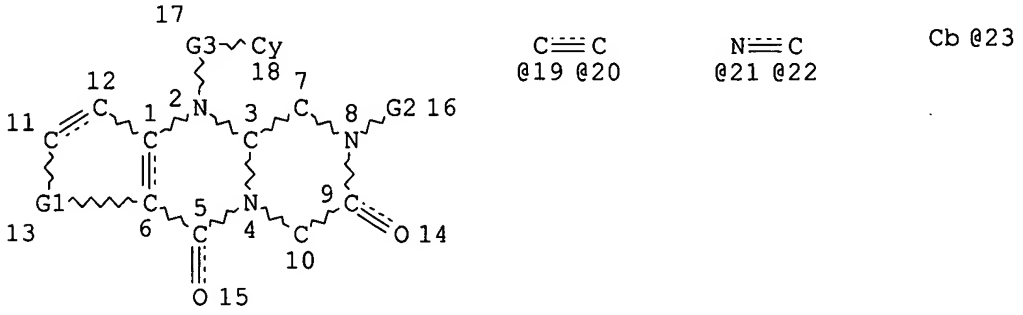
>>> FOR SEARCHING PREPARATIONS SEE HELP PRE <<<

```
**********************************************************************
* PLEASE NOTE THAT THERE ARE NO FORMATS FREE OF COST.                *
* SET NOTICE FEATURE: THE COST ESTIMATES CALCULATED FOR SET NOTICE   *
* ARE BASED ON THE HIGHEST PRICE CATEGORY. THEREFORE; THESE          *
* ESTIMATES MAY NOT REFLECT THE ACTUAL COSTS.                        *
* FOR PRICE INFORMATION SEE HELP COST                                *
**********************************************************************
```

NEW

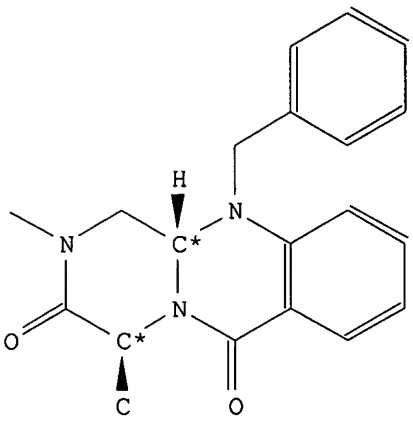
*** PATENT NUMBERS (PN) AND BABS ACCESSION NUMBERS (BABSAN) CAN NOW BE SEARCHED, SELECTED AND TRANSFERRED.**
*** NEW DISPLAY FORMATS ALLREF, ALLP AND BABSAN SHOW ALL REFERENCES, ALL PATENT REFERENCES, OR ALL BABS ACCESSION NUMBERS FOR A COMPOUND AT A GLANCE.**

```
=> d que stat l8
L1              STR
```




```
VAR G1=19-11 20-6/21-11 22-6/22-11 21-6
VAR G2=23/AK
REP G3=(1-5) CH2
NODE ATTRIBUTES:
DEFAULT MLEVEL IS ATOM
GGCAT   IS SAT  AT  23
DEFAULT ECLEVEL IS LIMITED

GRAPH ATTRIBUTES:
RING(S) ARE ISOLATED OR EMBEDDED
NUMBER OF NODES IS  23

STEREO ATTRIBUTES: NONE
L8            1 SEA FILE=BEILSTEIN SSS FUL L1

100.0% PROCESSED     280 ITERATIONS                    1 ANSWERS
SEARCH TIME: 00.00.06


=> d l8 ide allref


L8   ANSWER 1 OF 1 BEILSTEIN COPYRIGHT 2006 BEILSTEIN MDL on STN

     Beilstein Records (BRN):        8433173
     Chemical Name (CN):             (4S,11aS)-11-benzyl-2,4-dimethyl-
                                     2,4,11,11a-tetrahydro-1H-pyrazino<2,1-
                                     b>quinazoline-3,6-dione
     Autonom Name (AUN):             9-benzyl-2,4-dimethyl-1,2,9,9a-tetrahydro-
                                     2,4a,9-triaza-anthracene-3,10-dione
     Molec. Formula (MF):            C20 H21 N3 O2
     Molecular Weight (MW):          335.40
     Lawson Number (LN):             30150, 14140, 2817
     File Segment (FS):              Stereo compound
     Compound Type (CTYPE):          heterocyclic
     Constitution ID (CONSID):       7153145
     Tautomer ID (TAUTID):           7942403
```

Entry Date (DED): 2000/05/16
Update Date (DUPD): 2000/05/16



Field Availability:

Code	Name	Occurrence
BRN	Beilstein Records	1
CN	Chemical Name	1
AUN	Autonomname	1
MF	Molecular Formula	1
FW	Formular Weight	1
LN	Lawson Number	3
FS	File Segment	1
CTYPE	Compound Type	1
CONSID	Constitution ID	1
TAUTID	Tautomer ID	1
DED	Entry Date	1
DUPD	Update Date	1
IR	Infrared Spectrum	1
NMR	Nuclear Magnetic Resonance	3
ORP	Optical Rotatory Power	1

This substance also occurs in Reaction Documents:

Code	Name	Occurrence
RX	Reaction Documents	1
RXPRO	Substance is Reaction Product	1

All References:
ALLREF

1. Martin-Santamaria, Sonsoles; Espada, Modesta; Avendano, Carmen, J.Org.Chem., CODEN: JOCEAH, 64(19), <1999>, 7233 - 7235; BABS-6210846